

1044b UIC - EAST POPLAR OIL FIELD
ENFORCEMENT CASE SDWA 1431
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Region 8



13673

HISTORY



EAST POPLAR UNIT WELL NO. 67

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

EAST POPLAR UNIT WELL NO. 67

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

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=====

WELL HISTORY

=====

RECEIVED

DEC 22 1955

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

WELL NO.: East Poplar Unit No. 67

LOCATION: C SE NE Section 9, Township 28 North, Range 51 East

ELEVATION: 2044' Ground - 2054' K.B.

CONTRACTOR: Zach Brooks Drilling Company

SPUDDED: 8:00 P.M., October 3, 1955

COMPLETED: December 12, 1955

TOTAL DEPTH: 5843' Schlumberger equals 5839' Driller

CASING: 9-5/8" @ 968.58' with 400 sacks cement
5-1/2" @ 5842.00' with 300 sacks cement

TUBING: 2-7/8" @ 5654.14'

PERFORATIONS: "B-2" Zone 5639'-5644'

PACKER: None

ACID TREATMENT: "B-2" Zone 5639'-5644' - 500 gallons etching acid

INITIAL POTENTIAL: Pumped 280 BFPD, 56 percent water, 123 BOFD, 157 BWFD

TYPE COMPLETION: Single producer from "B-2" Zone.

Poor Quality Source Document

The following document
images have been
scanned from the best
available source copy.

To view the actual hard copy,
contact the Region VIII Records
Center at (303) 312-6473.

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 67
ON NE Section 9, T28N, R51E, Roosevelt County, Montana
(Change Tubing String)

PROPOSED WORK: Pumping from the B-2 Zone. August 6, 1968 Well Test 231 BPPD 98% Water
 Cut 76 BPPD 215 BPPD

Tubing Record

<u>Date</u>	<u>Dip-log</u>	<u>Hydro-test</u>	<u>Depth</u>	<u>Est. Cost</u>
9-7-66	Yes	-----	-----	\$ 1,600.00
11-9-67	No	-----	5240'	\$ 572.00
8-9-68	No	Yes	-----	\$ 750.00
				<u>\$ 2,922.00</u>

RECOMMENDATION: Work tubing leak change complete tubing string. (Pay out including lost production & tubing leaks.)

ESTIMATED COST

Pulling Unit, 20 hrs. at \$33.00 per hr.	\$ 660.00
5650' of 2-7/8" Tubing, Class No. 1 at \$1.02 per ft.	\$ 5,775.00
Tuboscope Salvaged Tubing at \$3.00 per joint	\$ 550.00
Credit for Estimated 12% Class No. 2 (573') at \$0.77 per ft.	(\$ 525.00)
Credit for Estimated 30% Class No. 3 (1693') at \$0.30 per ft.	(\$ 500.00)
Credit for Estimated 53% Class No. 4 (3277') at \$0.20 per ft.	(\$ 650.00)
Misc. Labor, Trucking, and Material	\$ 400.00
TOTAL ESTIMATED COST	\$ 5,725.00

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$ 1,800.00
Placid Oil Company	33.545035%	\$ 1,920.00
Humble Oil and Refining Company	16.335860%	\$ 935.00
Drilling Specialties Company	16.335860%	\$ 935.00
Minoco Company	2.096565%	\$ 121.00
C. F. Lundgren	.238210%	\$ 14.00

APPROVAL OF EXPENDITURE

Requested by:

Approved:

M. T. James
 M. T. James

8-15-68
 Date W. J. Thornton

Date

WJ/cb
 August 15, 1968

ade

AUTHORITY FOR EXPENDITURE
MINN OIL CORPORATION - EAST TOWER UNIT NO. 67
PT. St. Joseph P. 128N, 151E, Roseau Co., Minn.
(Change Tubing String)

PREPARED BY: Pumping from the B-2 Zone. November 3, 1966 Well Test 205 WEPD 52N
 W.C. 13 1966. 100 WEPD.

Tubing Record

<u>Date</u>	<u>Plat-Log</u>	<u>Hydro-Test</u>	<u>Depth</u>	<u>Net Cost</u>
9-6-66	Yes	-----	-----	
11-9-67	No	-----	-----	
8-9-68	No	Yes	5240'	\$ 1,004.00
				\$ 472.00
				\$ 530.00
				\$ 2,006.00

REMARKS: Some tubing leak change complete tubing string. (Pay out including lost production 4.9 tubing leaks.)

ESTIMATED COST

Drilling Unit, 20 hrs. at \$33.00 per hr.	
4150' of 2-7/8" tubing, Class No. 1 at \$1.62 per ft.	\$ 678.00
1500' of 2-7/8" tubing, Class No. 3 at \$0.30 per ft.	\$ 450.00
200000' of 2-7/8" tubing, Class No. 3 at \$0.30 per ft.	\$ 600.00
Grade for 150000' 12N Class No. 3 (573') at \$0.77 per ft.	\$ 115.50
Grade for 150000' 30N Class No. 3 (1695') at \$0.30 per ft.	\$ 508.50
Grade for 150000' 51N Class No. 4 (3277') at \$0.20 per ft.	\$ 327.70
Loss. Labor, Trucking, and Material	\$ 600.00
NET TOTAL ESTIMATED COST	\$ 4,039.70

APPROPRIATEMENT OF TOTAL ESTIMATED COST

Miner Oil Corporation	31.440370%	\$ 1,269.00
Miner Oil Company	33.545835%	\$ 1,355.00
Miner Oil & Refining Company	10.335660%	\$ 757.00
Drilling Specialties Company	10.335660%	\$ 757.00
Miner Company	2.096555%	\$ 97.00
G. P. Langdon	.238216%	\$ 11.00

APPROVAL OF EXPENDITURE

Requested by:

APPROVED:

[Signature]
 Date

Date

H. J. Thornton

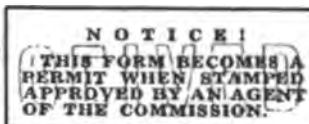
Date

BNW/sb
 November 4, 1966

(SUBMIT IN QUADRUPPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY



MAR 6 - 1957

SUNDRY NOTICES AND REPORT OF WELLS

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
		Workover History	X

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

February 27

1957

Following is a { ~~notice of intention to do work~~ } on land { owned } described as follows:
report of work done leased

LEASE 3929 (7842)

MONTANA
(State)

Roosevelt
(County)

East Poplar
(Field)

Well No. 68 SW NE Section 11 28N 51E M.P.M.
(m. sec.) (Township) (Range) (Meridian)

The well is located 2007 ft. from { N } Northline and 1980 ft. from { E } Eastline of Sec. 11

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2213'

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

SEE ATTACHED SHEETS

Approved subject to conditions on reverse of form

Date 3-4-57

By J. H. R. H. S. Title

District Office Agent

Company MURPHY CORPORATION

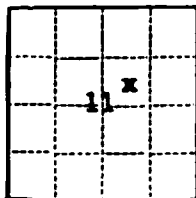
By M. Y. Jones

Title Field Production Supt. D

Address Helena, Montana

MAR 1 1957

NOTE:—Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.



28N

51E

U. S. GEOLOGICAL SURVEY
(SUBMIT IN TRIPLICATE)
RECEIVED

MAY 1 1962
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BILLINGS, MONTANA

Budget Bureau No. 42-R358.4
Approval expires 12-31-60.

Land Office Billings

Lease No. 3929 (7842) Patented

Unit East Poplar

Ref. 19

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL.....	SUBSEQUENT REPORT OF WATER SHUT-OFF.....
NOTICE OF INTENTION TO CHANGE PLANS.....	SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING.....
NOTICE OF INTENTION TO TEST WATER SHUT-OFF.....	SUBSEQUENT REPORT OF ALTERING CASING.....
NOTICE OF INTENTION TO RE-DRILL OR REPAIR WELL.....	SUBSEQUENT REPORT OF RE-DRILLING OR REPAIR.....
NOTICE OF INTENTION TO SHOOT OR ACIDIZE.....	SUBSEQUENT REPORT OF ABANDONMENT.....
NOTICE OF INTENTION TO PULL OR ALTER CASING.....	SUPPLEMENTARY WELL HISTORY.....
NOTICE OF INTENTION TO ABANDON WELL.....	
<u>Notice of Intention to D.O.C. Sqz</u> <input checked="" type="checkbox"/>	

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

April 30, 1962

Well No. 68 is located 2007 ft. from N line and 1980 ft. from E line of sec. 11

SW NE Section 11
(1/4 Sec. and 1/4 Sec. No.)

28N
(Twp.)

51E
(Range)

M.P.M.
(Meridian)

East Poplar
(Field)

Roosevelt
(County or Subdivision)

Montana
(State or Territory)

The elevation of the derrick floor above sea level is 2213 ft. K.B.

DETAILS OF WORK

ORIGINAL FORWARDED TO CASTER

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Dia-Log 2 3/8" tubing. Displace water with oil, D.O.C. squeeze the A-3 zone perforations through Model "R" packer with 50 sacks regular cement. Swab test and acidize with 500 gallons if needed.

Approved MAY 1 1962

(CIRC. SED.) HILLARY A. ODEN
District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Murphy Corporation

Address P. O. Box 547

Poplar, Montana

By ORIGINAL SIGNED BY M. T. JAMES

Title Field Production Supt.

STATE
MURPHY

SS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYSUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Fort Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar Unit11. SEC., T., R., M., OR B.L. AND
SURVEY OR AREASW NE Section 11,T28N, R51E

12. COUNTY OR PARISH

13. STATE

RooseveltMontana

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)1. OIL WELL ☒ GAS WELL ☐ OTHER

2. NAME OF OPERATOR

Murphy Oil Corporation

3. ADDRESS OF OPERATOR

P.O. Box 547, Poplar, Montana 592554. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface2007 from N 1980 E
647' from West line and 1979' from the South line

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE ~~XXXX~~ Zone XX

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(Note: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Pumping from the A-4 Zone. July 30, 1968 Well Test 114 BFPD 97% Water 3 BOPD
/11 BWPD (uneconomical).Pull rods and tubing. Perforate the B-1 Zone 5758-62' with 50 gram jet casing
gun (no acid), run rods and tubing. Pump Test. (Commingle production expected
from the A-4 and B-1 12-15 BOPD with 90-95% water cut).

18. I hereby certify that the foregoing is true and correct.

SIGNED ORIGINAL SIGNED BY M. T. JAMESTITLE District SuperintendentDATE September 30, 1968

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Roosevelt

Montana

STATE
MURPHY
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424

5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1.

OIL WELL ☒ GAS WELL ☐ OTHER ☐

2. NAME OF OPERATOR

Murphy Oil Corporation

3. ADDRESS OF OPERATOR

P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

2007' from North line and 1980' from East line

14. PERMIT NO.

15. ELEVATIONS (Show whether DP, RT, GR, etc.)

2184' G.L.

Fort Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

SW NE Section 11,
T28N, R51E

12. COUNTY OR PARISH

Roosevelt

13. STATE

Montana

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETION

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

Perforate B-1 Zone

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Perforate the B-1 Zone 5758-62' with Wireline Casing Gun 50 gram jets, 2 holes per foot. Ran tubing and rods and put well to pumping.

Pumping Fluid Level 5301'.

Fluid Entry 5424'.

A-4 & B-1 Workover Potential Pumping commingled 106 BFPD 97% W.C. 3 BOPD 103 BWPD. To Drop From Report. To pump test 30 days to determine if water cut will improve.

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE District Superintendent

DATE October 7, 1968

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
May 1963)

STATE
MURPHY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ENTERED IWR
CM

SUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)

Form approved
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Fort Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar Unit

11. SEC. T., R., S. OR BLK. AND
SURVEY OR AREA

SW NE Section 11,
T28N, R51E

12. COUNTY OR PARISH 13. STATE

Roosevelt Montana

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☒ GAS WELL ☐ OTHER ☐

2. NAME OF OPERATOR

Murphy Oil Corporation

3. ADDRESS OF OPERATOR

P.O. Box 547, Poplar, Montana 59755 Billings, Montana

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.
See also space 17 below.)
At surface

2007' from North line and 1980' from East line

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, ST, GR, etc.)

2184' G.L.

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any
proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones perti-
nent to this work.)*

East Poplar Unit No. 68 was shut in on March 23, 1969 due to electrical
trouble. This well has reached its economical limit producing at the rate
of 100 BFPD 97% W.C. 3 BOPD 97 BWP. Temporarily Abandoned March 31, 1969.

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE District Superintendent

DATE March 31, 1969

(This space for Federal or State office use)

APPROVED BY (ORIG. SGD.) MICHAEL F. REITZ

TITLE

ACTING DISTRICT ENGINEER

DATE APR 1 1969

CONDITIONS OF APPROVAL, IF ANY:

ORIGINAL FORWARDED TO CASPER

*See Instructions on Reverse Side

(SUBMIT IN QUADRUPLICATE)
TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS

NOTICE
THIS FORM BECOMES A
PERMIT WHEN STAMPED
APPROVED BY AN AGENT
OF THE COMMISSION.

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	XX
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

March 31, 19 69

Following is a ~~XXXXXXXXXXXXXXXXXXXX~~ report of work done on land ~~XXXXXX~~ leased described as follows:

LEASE East Poplar Unit No. 68

MONTANA
(State)

Roosevelt
(County)

East Poplar Unit
(Field)

Well No. 68 11 T28N R51E MPM
(m. sec.) (Township) (Range) (Meridian)

The well is located 2007 ft. from N line and 1980 ft. from E line of Sec. 11
~~XXXX~~ ~~XXXXXX~~

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2184' G.L.

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

East Poplar Unit No. 68 was shut in on March 23, 1969 due to electrical trouble. This well has reached its economical limit producing at the rate of 100 BFPD 97% W.C. 3 BOPD 97 BWPD. Temporarily Abandoned March 31, 1969.

Approved subject to conditions on reverse of form

Date 4-7-69

By *John P. Hef* District Office Agent Title

Company Murphy Oil Corporation

By *W. H. James*

Title District Superintendent

Address P.O. Box 547, Poplar, Montana

COMMISSION USE ONLY
API WELL NUMBER

2	5								
STATE	COUNTY	WELL							

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

3 REPORTER PRtg. & SUPPLY CO.

GENERAL RULES
201, 202, 213,
216, 219, 230,
231, 232

(SUBMIT IN QUADRUPPLICATE)

TO

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS

NOTICE
THIS FORM BECOMES A
PERMIT WHEN STAMPED
APPROVED BY AN AGENT
OF THE BOARD.

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
Reactivate T.A. Well	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

October 22, 1976

Following is a notice of intention to do work on land ~~XXXXXX~~ leased described as follows:

LEASE East Poplar Unit No. 68

MONTANA
(State)Roosevelt
(County)East Poplar Unit
(Field)

Well No. 68 SW NE 11 T28N R51E MPM
(m. sec.) (Township) (Range) (Meridian)

The well is located 2007 ft. from N line and 1980 ft. from E line of Sec. 11
XXXX

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2184' G.L.

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

It is proposed to reactivate this temp. abandoned well. East Poplar Unit No. 100 is the South offset to No. 68 and is being produced from the B-1 at the rate of 24 BOPD and 50 BOPD with a 66% water cut. At the time East Poplar Unit No. 68 was Temp. Abandoned it was producing at the rate of 3 BOPD and 103 BOPD from the B-1 and A-3 comingled.

It is proposed to set a packer at 5740' and acidize the B-1 perforations, 5758-5762' with 1000 gallons of 28% HCL acid. It is anticipated that recovery should amount to at least what is presently being produced from East Poplar Unit No. 100.

(LOCATION INSPECTED & APPROVED)

Approved subject to conditions on reverse of form

Date OCT 28 1976

By Blaine L. Thompson District Office Agent Title

Company Murphy Oil CorporationBy Billy L. MelcarTitle District SuperintendentAddress P.O. Box 547, Poplar, Montana 59255

BOARD USE ONLY
API WELL NUMBER

NOTE:—Reports on this form to be submitted to the appropriate District for approval

WHEN USED AS PERMIT TO DRILL, PERMIT EXPIRES 90 DAYS FROM DATE OF
APPROVAL IF WELL NOT SPUDED OR EXTENSION REQUESTED.
OVER

OPERATOR
STATE B

REF. 19

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 42-R1424.
5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Fort Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar Unit

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

SW NE Section 11,
T28N, R51E

12. COUNTY OR PARISH

Roosevelt

13. STATE

Montana

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	OCT 26 1976
2. NAME OF OPERATOR Murphy Oil Corporation	Billings, Montana
3. ADDRESS OF OPERATOR P.O. Box 547, Poplar, Montana 59255	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 2007' from North line and 1980' from East line	
14. PERMIT NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.) 2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other) Reactivate T.A. Well

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

It is proposed to reactivate this temp. abandoned well. East Poplar Unit No. 100 is the South offset to No. 68 and is being produced from the B-1 at the rate of 24 BOD and 50 BWD with a 66% water cut. At the time East Poplar Unit No. 68 was temp. abandoned it was producing at the rate of 3 BOPD and 103 BWPD from the B-1 and A-3 comingled.

It is proposed to set a packer at 5740' and acidize the B-1 perforations, 5758-5762', with 1000 gallons of 28% HCL acid. It is anticipated that recovery should amount to at least what is presently being produced from East Poplar Unit No. 100.

18. I hereby certify that the foregoing is true and correct

SIGNED

Billie J. McLean

TITLE District Superintendent

DATE October 22, 1976

(This space for Federal or State office use)

APPROVED BY

Wigbert A. Pauli

TITLE

DATE

10-27-76

CONDITIONS OF APPROVAL, IF ANY:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

Fort Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

SW NE Section 11,

T28N, R51E

12. COUNTY OR PARISH 13. STATE

Roosevelt

Montana

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

RECEIVED

1. OIL WELL ☒ GAS WELL ☐ OTHER

MAY 1 1978

2. NAME OF OPERATOR

Murphy Oil Corporation

Billings, Montana

3. ADDRESS OF OPERATOR

P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

2007' from North line and 1980' from East line

14. PERMIT NO.

15. ELEVATIONS (Show whether DP, RT, GR, etc.)

2184' G.I.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

FRACTURE TREAT

MULTIPLE COMPLETE

SHOOT OR ACIDIZE

ABANDON*

REPAIR WELL

CHANGE PLANS

(Other)

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other) Cancel Work

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

X

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Due to the lack of success on other workovers in this area it has been decided to cancel this work.

This wells status will remain temporarily abandoned.

18. I hereby certify that the foregoing is true and correct

SIGNED

Billy D. Melton

TITLE District Superintendent

DATE April 27, 1978

(This space for Federal or State office use)

APPROVED BY

Angil L. Paul

TITLE ASST

DATE

5-2-78

CONDITIONS OF APPROVAL, IF ANY:

GENERAL RULES
201, 202, 213,
218, 219, 230,
231, 232

(SUBMIT IN QUADRUPLICATE)

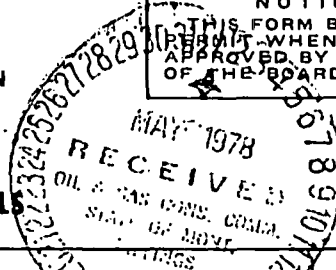
TO

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS

NOTICE
THIS FORM BECOMES A
PERMIT WHEN STAMPED
APPROVED BY AN AGENT
OF THE BOARD.



Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
		Cancel Work	X

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

April 27, 1978

Following is a ~~report of work done~~ on land ~~leased~~ described as follows:

LEASE East Poplar Unit No. 68

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)
Well No. 68 SW NE Section 11 T28N R51E MPM
(n. sec.) (Township) (Range) (Meridian)

The well is located 2007 ft. from N line and 1980 ft. from E line of Sec. 11
XXX XXX

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2184' G.L.

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Due to the lack of success on other workovers in this area it has been decided to cancel this work.

This wells status will remain temporarily abandoned.

Approved subject to conditions on reverse of form

Date MAY 1 1978

By Clair J. Humphrey Super.
District Office Agent Title

Company Murphy Oil Corporation

By W. D. McLean

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

BOARD USE ONLY
API WELL NUMBER

2	5								
STATE	COUNTY	WELL							

NOTE:—Reports on this form to be submitted to the appropriate District for approval

WHEN USED AS PERMIT TO DRILL, PERMIT EXPIRES 90 DAYS FROM DATE OF APPROVAL IF WELL NOT SPIDDED OR EXTENSION REQUESTED.

OVER

Form 9-331
May 1963)

STATE
MURPHY

SS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.

Reynolds Fee

6. IF INDIAN, ALLOTTED, OR TRIBE NAME

Port Peck

7. UNIT AGREEMENT NAME

East Poplar Unit

8. FARM OR LEASE NAME

East Poplar Unit

9. WELL NO.

No. 68

10. FIELD AND POOL, OR WILDCAT

East Poplar Unit

11. SEC. T. R. M., OR BLM, AND
SURVEY OR AREA

SW NE Section 11,

T28N, R51E

12. COUNTY OR PARISH

Roosevelt

18. STATE

Montana

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☒ GAS WELL ☐ OTHER ☐

2. NAME OF OPERATOR

Murphy Oil Corporation

3. ADDRESS OF OPERATOR

P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

2007 ^N 647' from West line and 1980 ^E 1979' from the South line

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

2184' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐

FRACTURE TREAT ☐

SHOOT OR ACIDIZE ☐

REPAIR WELL ☐

(Other) ☐

PULL OR ALTER CASING ☐

MULTIPLE COMPLETE ☐

ABANDON* ☐

CHANGE ~~FROM~~ Zone XX ☒

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐

FRACTURE TREATMENT ☐

SHOOTING OR ACIDIZING ☐

(Other) ☐

REPAIRING WELL ☐

ALTERING CASING ☐

ABANDONMENT* ☐

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any
proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones perti-
nent to this work.)*

Pumping from the A-4 Zone. July 30, 1968 Well Test 114 BFPD 97% Water 3 BOPD
/11 BFPD (uneconomical).

Pull rods and tubing. Perforate the B-1 Zone 5758-62' with 50 gram jet casing
gun (no acid), run rods and tubing. Pump Test. (Commingle production expected
from the A-4 and B-1 12-15 BOPD with 90-95% water cut).

18. I hereby certify that the foregoing is true and correct.

SIGNED ORIGINAL SIGNED BY M. T. JAMES

TITLE District Superintendent

DATE September 30, 19

(This space for Federal or State office use)

(ORIG. SGD.) MICHAEL F. REITZ

APPROVED BY
CONDITIONS OF APPROVAL, IF ANY:

TITLE

DATE

*See Instructions on Reverse Side

Roosevelt

Montana



LOCATE WELL CORRECTLY

(SUBMIT IN TRIPLICATE)
TOOIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY794
Form No. 4
(Gen. Rule 200.3 & 231)

DEC 23 1955

LOG OF WELL

DEC 27 1955

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGSOIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANACompany Murphy Corporation Lease Allotted-Whitright 1-37-Ind-12800 Well No. 67Address 602 Midland Bank Bldg, Billings, Montana Field (or Area) East PoplarThe well is located 1976 (N) ft. from 660 (E) ft. from Sec. 9Sec. 9; T. 28N; R. 51E; County Roosevelt; Elevation 2054' K.B.
(D.F., R.B. or G.L.)Commenced drilling 8:00 P.M., October 3, 1955; Completed December 12, 1955

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as Oil Well
(oil well, gas well, dry hole)Signed Harold M. ...Title Division Production SuperintendentDate December 15, 1955

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

From <u>5639'</u>	to <u>5644'</u>	<u>O</u>	From _____	to _____
From _____	to _____		From _____	to _____
From _____	to _____		From _____	to _____
From _____	to _____		From _____	to _____

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sacks of Cement	Cut and Pulled from
9-5/8"	36#	J-55	8	968.58'			400	
5-1/2"	15.50#	J-55	8	5842.00'			300	

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
2-7/8"	6.50#	J-55	8	5654.14	open ended

COMPLETION RECORD

Rotary tools were used from 0 to 5843'
Cable tools were used from -- to 00
Total depth 5843 ft.; Plugged back to 5764 T.D.; Open hole from _____ to _____

PERFORATIONS			ACIDIZED, SHOT, SAND FRACED, CEMENTED		
Interval	Number and Size and Type		Interval	Amount of Material Used	Pressure
From <u>5639'</u> To <u>5644'</u>	<u>1/2" Jet</u>		From <u>5639'</u> To <u>5644'</u>	<u>500 gallons etching acid</u>	<u>2100#</u>

(If P&A show plugs above)

INITIAL PRODUCTION

Well is producing from Madison (pool) formation.I. P. 123 barrels of oil per 24 hours pumping
(pumping or flowing)-- Mcf of gas per -- hours.157 barrels of water per 24 hours, or -- % W.C.
(OVER)

COMPLETION DATA

RECEIVED

DEC 27 1955

CASING: Ran 25 jts. 1007.38' of 9-5/8", 36#, J-55, 8rd. thd., R-2 American casing. Landed 9.75' below RKB at 1017.23'. Howco float shoe at 1017.23, Howco centralizers at 995' and 835'. Cemented with 400 sacks cement with 2 percent CaCl₂. Ran 10 barrels soda ash water followed by 10 barrels clean water ahead of cement. Bumped plug with 900 PSI, released pressure, float held ok. Tested 9-5/8" casing and blow-out preventers with 1000# pressure for 30 minutes, held ok.

Ran 187 jts. 5951.50' of 5-1/2", 15.50#, J-55, 8rd. thd., R-2 American casing. Landed 8.50' below RKB at 5960' Schlumberger, 1' off bottom. Howco differential fillup shoe on bottom and Howco baffle collar at 5926.69'. Ran 5 Weatherford spiral centralizers at 5953', 5912', 5792', 5752', and 5590'. Ran 46 Weatherford reciprocating scratchers from 5548' to 5960'. Reciprocated pipe 35' while circulating 1 hour and during cementing. Cemented with 300 sacks Slo-set cement with 2 percent gel. Plug down at 11:37 P.M., 12-3-55. Bumped plug with 1200 PSI, released pressure, float held ok. Set slips.

COMPLETION: Picked up 191 jts. tubing and tagged bottom. Tubing record as follows: 2-3/8" EUE, 4.70#, J-55, 8rd. thd., R-2, Class A tubing

Landed below RKB	7.00
Top joint	31.15
Sub joints	14.10
179 joints	5561.48
Bottom tubing	5613.73.

Tested tree and casing with 1000 PSI. Reversed out mud with water, spaced tubing at 5616' and reversed out water with oil. Picked up tubing 15', went in hole with Lane Wells 1-3/4" expendable tubing gun. Perforated "A" Zone 5614'-5619' with 5 jets per foot, 25 shots. Would not flow natural. Acidized "A" Zone with 500 gallons Dowell etching acid through perforations. Broke formation down at 1900 PSI after 42 gallons injected, pressure bled back to 900 PSI. Injected 126 more gallons at maximum pressure of 2100 PSI. Bled back to 900 PSI. Total acid injected equals 168 gallons. Opened well to pit. Spent acid to surface in 42 minutes, clean oil 15 minutes later. Cleaned to pit.

16/64" choke, 1 hr. test, flowed 376.20 BFPD, 274.60 BOPD, 27% BS&W. TFP--480#, CP--670#, choke plugged.

12/64" choke, 1 hr. test, flowed 202.50 BFPD, 149.80 BOPD, 27% BS&W. TFP--360#, CP--680#, choke plugged.

Released rig at 4:00 P.M., 12-6-55. Moved off rig and continued testing.

12/64" choke, 199 BFPD, 2% BS&W, 194 BOPD, 4 BHPD.

10/64" choke, 84.50 BFPD, 81.12 BOPD, 3.98 BHPD, TFP--175#, CP--80#.

10/64" choke, 194 BFPD, 8% water, 179 BOPD, 15 BHPD, (initial potential).

ELECTRO LOG DATA

TYPE OF LOG

INTERVAL LOGGED

Schlumberger Electrical Survey 2"-----1017'-5960'
 Schlumberger Microlog 5"-----2000'-5958'

LOG TOPS

Greenhorn-----	2438	(- 228)
Graneros-----	2640	(- 427)
Muddy-----	3008	(- 795)
Dakota Silt-----	3215	(-1002)
Morrison (?)-----	3580	(-1367)
Vanguard-----	4009	(-1796)
Ricardon-----	4193	(-1980)
Piper Shale-----	4364	(-2151)
Piper Limestone-----	4450	(-2237)
Spearfish-----	4703	(-2490)
Amsden (?)-----	4802	(-2589)
Heath (?)-----	4959	(-2746)
Otter-----	5118	(-2906)
Kibbey-----	5262	(-3049)
Kibbey Limestone-----	5417	(-3204)
Madison-----	5510	(-3297)
"A" Zone-----	5616	(-3403)
"B-1" Zone-----	5758	(-3545)
"B-2" Zone-----	5776	(-3563)
"C" Intercrystalline-----	5926	(-3713)

RECEIVED

DEC 27 1955

OIL AND GAS CONSERVATION COMMISSION
 OF THE STATE OF MONTANA - BILLINGS

D R I L L S T E M T E S T S

- D.S.T. #1: 5761'-5771' ("B-1" Zone) with Halliburton, 1/2" bottom choke, no water cushion. Tool open 4 hours. Tool opened with medium blow, continued throughout test. Gas to surface in 3 hours and 15 minutes. No closed in pressure, tool would not rotate, pipe stuck. Dropped bar, opened circulating sub at 5648', reversed out fluid from drill stem test. Recovered 100' clean oil, 90' oil-and-gas-cut mud and 200' salt sulphur water, and 90' additional feet of water left in hole under circulating sub. IBHFP--15#, FBHFP--580#, BHISIP--3295#, (?), Hydro--3515#.
- D.S.T. #2: 5777'-5791' ("B-2" Zone) with Halliburton single packer, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with good blow, continued throughout test. Gas to surface in 3 hours and 20 minutes. Recovered 273' clean oil, 212' oil-and-gas-cut mud, 4188' salt sulphur water. IBHFP--60#, FBHFP--2110#, BHISIP--2645#, Hydro--3280#.
- D.S.T. #3: 5923'-5937' ("C" Zone) with Halliburton straddle packers, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with very weak blow, died in 2 hours and 35 minutes, remained dead rest of test. Recovered 90' slightly gas-cut mud, no trace of oil or water. IBHFP--15#, FBHFP--32#, BHISIP--920#, Hydro--3405#, bottom packer held ok.

RECEIVED

DEC 27 1955

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

C O M P L E T I O N D A T A

CASING: Ran 29 jts. 958.83' of 9-5/8", 36#, J-55, R-2, 8rd. thd., Class A American casing. Landed 9.75' below RKB. Howco float shoe at 968.58'. Two Howco centralizers at 740' and 953'. Cemented with 400 sacks of regular Ideal cement with 2 percent CaCl₂. Bumped with 1550#, released pressure, float held ok. Plug down at 12:34 A.M., 10-5-55. Cement to surface. Tested 9-5/8" casing and blow out preventers with 1000#, 30 minutes, held ok.

Ran 173 jts. 5833.50' of 5-1/2", 15.50#, J-55, R-2 and R-3, 8rd. thd., Class A American casing. Landed 8.50' below RKB at 5842'. Howco differential fillup shoe on bottom. Howco baffle collar at 5817.47'. 5 Weatherford spiral centralizers at 5835', 5778', 5666', 5608', and 5513'. 47 Weatherford reciprocating scratchers from 5391'-5842'. Reciprocating scratchers from 5391' to 5842'. Reciprocated pipe 30' to 40' while circulating 30 minutes and during cementing. Cemented with 300 sacks Slo-set cement with 2 percent gel. Plug down at 3:26 P.M., 10-26-55. Bumped plug with 1300 PSI, released pressure, float held ok.

COMPLETION: Rig released at 9:00 A.M., 10-27-55. Moved in pulling unit to complete. Ran 2-7/8", EUE, 6.50#, J-55, 8rd. thd. tubing....

Landed below RKB	7.00
Top joint	31.19
181 joints	5614.95
Bottom of tubing	5654.14'

Washed down to solid bottom 5797'. Perforated "B-2" Zone 5639'-5644' with Schlumberger 2-1/8" tubing gun, 4 shots per foot. Acidized "B-2" Zone 5639'-5644' with 500 gallons Dowell etching acid. Maximum injection pressure 2100#, injection rate .4 BPM. Bleed down pressure 1000#. Opened to pit, flowed small stream for 3 hours and 30 minutes, died.

Swabbing record--

8 hours, rate last 2 hours: 131 BOPD, 197 BWPD, 60% water,
8 hours, rate last 1 hour: 98 BOPD, 326 BWPD, 77% water.
Shut in 14 hours, swabbed 245 bbls. fluid, 10 hours, 171 bbls. water, 74 bbls. oil.

Ran rods and set pumping unit.

Pumping record--

Pumped 476 BFPD, 81% water, 90 BOPD, 386 BWPD.
Pumped 336.64 BFPD, 70% water, 101 BOPD, 235 BWPD.
Pumped 291 BFPD, 75% water, 73 BOPD, 218 BWPD.
Pumped 280 BFPD, 56% water, 123 BOPD, 157 BWPD. (Initial potential).

ELECTRO LOG DATA

TYPE OF LOG

INTERVAL LOGGED

Schlumberger Electrical Survey 2"	968' - 5842'
Schlumberger Microlog 5"	968' - 5842'
Schlumberger Gamma Ray-Neutron 2"	100' - 5764'
Schlumberger Gamma Ray-Neutron 5"	4720' - 5764'
Schlumberger Temperature Log	0' - 928'

LOG TOPS

Niobrara	1993 (+ 61)
Greenhorn	2333 (- 279)
Graneros	2533 (- 479)
Muddy	2902 (- 848)
Dakota Silt	3128 (- 1074)
Morrison	3510 (- 1456) (?)
Swift	3580 (- 1526) (?)
Vanguard	3902 (- 1848)
Rierdon	4084 (- 2030)
Piper Shale	4253 (- 2199)
Piper Limestone	4339 (- 2285)
Gypsum Springs	4390 (- 2336)
Spearfish	4610 (- 2556)
Amsden	4711 (- 2657)
Heath	4810 (- 2756)
Otter	4955 (- 2901)
Kibbey Sandstone	5114 (- 3060)
Kibbey Limestone	5263 (- 3209)
Madison	5354 (- 3300)
"A" Zone	5488 (- 3434)
"B-1" Zone	5620 (- 3566)
"B-2" Zone	5640 (- 3586)
"C" Intercrystalline	5772 (- 3718)
19' of salt between "A" Zone and "B-1" Zone	

D R I L L S T E M T E S T S

- D.S.T. #1: 5480'-5489' ("A" Zone) with Halliburton straddle packers, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with weak blow, died in 40 minutes. Dead 35 minutes, started weak blow, continued throughout rest of test. Recovered 30' gas, 90' gas-cut mud, 120' muddy salt sulphur water, and 438' salt sulphur water. IBHFP--0#, FBHFP--230#, BHSIP--2850#, Hydro--3160#. Bottom packer held ok.
- D.S.T. #2: 5621'-5640' ("B-2" Zone) with Halliburton, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with weak blow for 18 minutes, increased to good blow, continued throughout test. Recovered 3270' gas, 360' clean oil, 180' oil-and-gas-and-salt-water-cut mud, 540' salt water. IBHFP--20#, FBHFP--470#, BHSIP--2730#, Hydro--3015#.
- D.S.T. #3: 5614'-5626' ("B-1" Zone) with Halliburton straddle packers, 1/2" bottom choke, no water cushion. Tool open 4 hours, closed 30 minutes. Tool opened with very weak blow, died in 45 minutes. Dead rest of test. Recovered 5' mud. IBHFP--0#, FBHFP--20#, BHSIP--20#, Hydro--3015#. Bottom packer held ok.
- D.S.T. #4: 5768'-5779' ("C" Zone) with Halliburton, 1/2" bottom choke, no water cushion. Tool open 2 1/2 hours, closed 30 minutes. Tool opened with very weak blow, died in 65 minutes, dead rest of test. Recovered 15' rathole mud. IBHFP--0#, FBHFP--0#, BHSIP--20#, Hydro--3015#.
- D.S.T. #5: 5781'-5791' with Halliburton straddle packer test, 1/2" bottom choke, no water cushion. Tool open 3 hours, closed 30 minutes. Recovered 180' gas, 90' slightly oil-cut-muddy-salt water. IBHFP--0#, FBHFP--40#, BHSIP--123#, Hydro--3030#.

C O R E A N A L Y S I S R E P O R T S

Company Murphy Corporation Date 10-20-55 Lab. No. 470 Well No. Unit #67 Location C SE NE 9-28N-51E
 Formations "A", "B-1" & "B-2" Zones Field East Poplar County Roosevelt State Montana Depths 5470-96 5602-40

Sample No.	Representative of Feet	Midpoint of Sample	Permeability		Effective Porosity Percent	Density		Saturation % of Pore Space	
			Radial	Vertical		Bulk	Matrix	Resid. Oil	Water
	Core No. 1	5470-5496	Rec. 26'						
1	5483-84		3.18	3.37	2.8	2.65	2.72	0.0	15.4
2	84-85		0.35	2.18	1.3	2.64	2.69	5.6	64.4
3	85-86		F.T.	18.	4.7	2.58	2.71	0.0	11.7
4	86-87		2.11	3.69	2.3	2.66	2.72	0.0	12.2
5	87-88		0.14	0.16	0.7	2.68	2.70	0.0	48.6
6	88-89		F.T.	3.99	1.4	2.66	2.70	0.0	18.6
7	89-90		3.84	0.18	1.4	2.65	2.69	0.0	18.6
8	90-91		F.T.	0.03	0.2	2.68	2.69	0.0	75.4
9	91-92		0.02	-0.01	1.1	2.66	2.70	0.0	26.4
10	92-93		15.	1.68	2.9	2.63	2.71	0.0	25.2
11	93-94		45.	0.24	2.7	2.64	2.72	0.0	12.2
12	94-95		22.	0.82	1.5	2.65	2.69	0.0	18.0
13	95-96		9.55	0.86	5.5	2.58	2.73	Tr.	15.1
	Core No. 2	5602-5640	Rec. 38'						
NS	5602-14								
14	14-15		10.	17.	3.3	2.52	2.61	0.0	27.6
15	15-16		0.96	2.44	4.5	2.44	2.56	0.0	8.0
16	16-17		22.	0.44	7.5	2.37	2.57	0.0	14.3
17	17-18		4.23	4.46	10.0	2.30	2.55	0.0	23.1
18	18-19		7.55	30.	5.1	2.42	2.55	0.0	12.4
19	19-20		23.	236.	9.4	2.28	2.51	0.0	11.2
20	20-21		1.07	6.25	3.5	2.47	2.56	8.9	27.1
21	21-22		5.90	15.	7.0	2.38	2.56	Tr.	10.1
22	22-23		0.50	15.	4.6	2.43	2.55	0.0	13.3
NS	23-34								
23	34-35		35.	3.21	12.1	2.37	2.70	8.5	18.8

CORE ANALYSIS REPORTS CONTINUED

Formations "B-1", "B-2" & "C" Zones

Depths 5602-5640 5781-5839

Date 10-28-55

Sample No.	Representative of Feet	Midpoint of Sample	Permeability		Effective Porosity Percent	Density		Saturation % of Pore Space	
			Radial	Vertical		Bulk	Matrix	Resid. Oil	Water
24	35-36	5781-5839	25.	2.64	10.0	2.42	2.69	9.3	40.0
25	36-37		19.	1.14	14.6	2.30	2.70	7.3	54.1
26	37-38		5.14	3.42	10.8	2.39	2.68	8.4	33.7
27	38-39		3.00	1.08	5.6	2.55	2.70	3.8	25.0
	Core No. 5		Rec. 57'						
28	5781-92		0.11	0.07	9.3	2.48	2.73	26.8	25.2
29	82-83		0.71	0.10	13.7	2.36	2.73	27.3	26.3
30	83-84		1.30	0.15	15.6	2.32	2.74	14.9	30.8
31	84-85		0.88	0.14	13.4	2.37	2.74	19.9	42.5
32	85-86		1.81	0.19	14.2	2.36	2.75	11.5	33.8
33	86-87		0.41	0.10	9.1	2.45	2.70	5.2	58.6
34	87-88		0.62	0.09	11.9	2.38	2.71	26.4	28.7
35	88-89		0.95	0.18	14.3	2.32	2.70	25.2	26.7
36	89-90		0.99	0.15	13.6	2.33	2.70	22.8	29.1
37	90-91		0.28	0.06	7.4	2.44	2.64	32.7	31.6

=====

C O R E D E S C R I P T I O N S

=====

Core No. 1 5470-5496, cut 26', recovered 26'.

- 4'0" Dolomite; dark gray, cryptocrystalline, dense, no show.
- 9'0" Anhydrite; light gray, amorphous, dense, no show.
- 6'0" Limestone; gray-brown, amorphous with numerous tight to slightly open irregular fractures with good oil odor, stain and bright yellow fluorescence.
- 3'0" Limestone as above with no associated stain or fluorescence along tight fractures.
- 4'0" Limestone; dark gray-brown, amorphous to microcrystalline with alternating bands of stained irregular fractures throughout unit, good odor, stain and fluorescence.

Core No. 2 5602-5640, cut 38', recovered 38'.

- 4'0" Anhydrite; light gray, salty, no show.
- 8'0" Anhydrite; light gray, amorphous, dense, no show.
- 9'0" Limestone; dark gray-brown, earthy to fine crystalline, slight visible porosity, fair oil odor on fresh break, entire unit stained, pale yellow, somewhat spotty fluorescence throughout, upper 3' highly fractured on removing from core barrel.
- 11'0" Anhydrite; light to medium gray, amorphous, no show.
- 5'0" Limestone; gray-brown, earthy to amorphous, rarely medium crystalline, brittle, poor oil odor on fresh break, entire unit stained, pale golden yellow fluorescence throughout.

Core No. 3 5769-5778, cut 9', recovered 3'.

- C-1 3'0" Limestone; medium gray, microcrystalline, hard, dense, trace fluorescence, no odor or stain, core left in hole.
- 5'0" No recovery.

Core No. 4 5778-5779, cut 1', recovered 3'.

- 2'0" Limestone; medium gray, microcrystalline, dense, fractured, no show.
- 1'0" Limestone; gray-brown, micro-sucrosic, hard, dense, very faint odor on fresh break, spotty pale yellow fluorescence, no evident stain.

Core No. 5 5781-5839, cut 56', recovered 57'.

- C-1 10'0" Limestone; dark gray-brown, very fine crystalline to micro-sucrosic, fair oil odor on fresh break, spotty pale yellow fluorescence throughout, entire unit oil stained.
- 6'0" Limestone; dark gray-brown, micro-sucrosic to fine crystalline, with calcite lined fractures, no show.

CORE DESCRIPTION CONTINUED

- 3'0" Limestone; dark to medium gray, medium to coarse crystalline, numerous brachiopods in top, trace fluorescence and stain in top foot with sulfurous odor.
- 11'0" Limestone; dark gray-brown, micro-sucrosic with trace intercrystalline porosity, no show.
- 15'0" Limestone; dark gray, medium to coarse crystalline, dense, hard, no show.
- 7'0" Limestone; medium dark gray, amorphous, argillaceous, no show.
- 4'0" Limestone; dark gray, coarse crystalline, argillaceous, no show.

M U D P R O G R A M S U M M A R Y

MUD SERVICE CO:

NORTHERN MUD CO.

MUDDITIVES AND COST:

Material	Spud - Surface		Surface - T.D.		Total	
	Amount	Cost	Amount	Cost	Amount	Cost
Magcobar	550	1555.09	16	45.28	566	1600.37
Magcogel	34	73.67	39	84.45	73	158.12
Magcophos	4	110.00			4	110.00
Dupont CMC			25	875.00	25	875.00
Cement	10	18.50			10	18.50
Quebracho			71	940.75	71	940.75
Caustic Soda			55	742.50	55	742.50
Total Mud		1757.26		2687.98		4445.24
Drayage		139.98		91.34		221.32
TOTAL COST		97.24		2779.32		4666.56

UNIT MUD COSTS:	Total Cost	Feet Drld.	Cost Per Foot	Days Mud Used	Cost Per Day
Spud - T.D.	4666.56	5840.	.79	26	179.48
Spud - Surface	1897.24	976	1.94	1 1/4	1517.79
Surface - T.D.	2779.32	4864	.57	24 3/4	112.30

MUD PROPERTIES:

Depth	Weight	Viscosity	sp	Water Loss
900	11.6	53		
2000	Water			
3000	Water			
4000	Water			
4500	10.4	40	13	16
5000	10.6	41	13	16
5500	10.5	45	12.5	16
5600	10.5	55	13	16
5700	10.5	54	12.5	15
5840	10.3	45	12.5	15

SUMMARY:

A spud mud made from 23 sacks of gel and 10 sacks of cement was used to drill to 500'. At this depth the addition of water was stopped and the natural mud solids allowed to build up the weight and viscosity. The mud weight was then raised to 11.8 lbs per gallon with 550 sacks of barite. Eleven sacks of gel and 4 sacks of phosphate were used to control the viscosity and gel strengths. The 12 1/4" surface hole was continued to a depth of 976' and 9 5/8" casing was landed at 969' and cemented with 400 sacks. No trouble was encountered while drilling or running casing.

Mud Program Summary Continued

An 8 3/4" hole was drilled from below surface to approximately 4200' with water. At this point water additions were cut down, the natural clay solids were allowed to build up, and conversion to a high Ph red mud was begun. Additions of caustic soda, Cuebracho, and gel were effective in controlling the viscosity, Ph, and gel strength of the mud. Barites and water were used to control the weight at 10.3 to 10.5 lbs per gallon. Dupont CMC was used to control the water loss at 15 cc or below. The cost of this material is \$.70 per lb. compared with \$.90 per lb. for Driscose. However, the effectiveness of this product is not as great as Driscose and no saving or loss from the use of the Dupont product has been established.

Five cores were cut and five drill stem tests were run without difficulty. Mud properties were maintained reasonably constant from the conversion point to the total depth of 5840'.

D R I L L I N G B I T R E C O R D

Bit No.	Make	Size	Type	Ser. No.	From	To
	Hughes	12 1/4	OSC-3	Retip	0	976
1	Security	8 3/4	S3?	102204	976	2935
2	"	"	S6	104009	2935	3300
3	"	"	"	104008	3300	3545
4	"	"	"	104648	3545	4260
5	"	"	"	103991	4260	4440
6	"	"	"	104087	4440	4621
7	"	"	"	104155	4621	4872
8	"	"	"	103115	4872	4926
9	"	"	"	104154	4926	4951
10	"	"	"	104010	4951	5010
11	"	"	"	103995	5010	5146
12	"	"	"	103358	5146	5335
13	"	"	"	104231	5335	5470
14	"	"	"	104182	5470	5602
15	"	"	"	102923	5602	5767
16	"	"	"	Re-run	5767	5840

T O T C O R E C O R D

<u>Depth Out</u>	<u>Degrees Off</u>
250	3/4
1615	3/4
2500	0
4200	3/4
4873	1

Christensen Diamond Coring Record Bit No. N-32339, R-2485, Q-S35

Core No.	From	To	Footage
1	5470	5496	26
2	5602	5640	38
3	5769	5778	9
4	5778	5779	1
5	5781	5839	58

S A M P L E D E S C R I P T I O N

2000	2130	Shale; medium to dark gray, silty; limestone; trace, gray, microcrystalline; sandstone, trace, silty, gray; trace quartz pebbles.
2130	2330	Shale; medium gray as above; shale, gray with tan specks, slightly calcareous; trace limestone and sandstone and quartz as above.
2332		<u>Sample Top Greenhorn</u>
2330	2530	Shale; medium to dark gray, silty with occasional tan specks.
2530	2690	Shale; medium gray, silty; trace sandstone, dark gray, shaley; trace pyrite and aragonite.
2690		<u>Sample Top Upper Muddy</u>
2690	2880	Shale; as above; scattered light gray siltstone.
2880	2920	No samples.
2920	3000	Sandstone; medium grained, clear to gray, speckled, occasionally glauconitic; shale, scattered as above; <u>one or two sandstone fragments gave good streaming out with CCl₄ but no stain or fluorescence without CCl₄, possible contamination.</u>
3000	3123	Shale; medium and dark grays, micaceous; siltstone, trace, gray; sandstone, trace, fine grained, glauconitic, gray.
3123		<u>Sample Top Dakota Siltstone</u>
3123	3185	Shale; grays and some brown to brown-gray, silty to sandy; scattered sandstone, fine to medium grained, gray.
3185	3280	Sandstone, scattered, light gray to buff, fine grained, angular, fine porosity; shale as above.
3280	3540	Shale; grays and gray-browns, silty; trace sandstone, buff to gray, fine grained.
3540		<u>Sample Top Swift</u>
3540	3720	Shale; medium gray to gray-brown, flakey; scattered sandstone, light gray, fine grained, glauconitic.
3720	3835	Shale; as above, trace sandstone as above.
3835	3900	Shale; light gray, flakey; shale, dark gray, micaceous; shale scattered browns, micaceous; trace aragonite and pyrite.

SAMPLE DESCRIPTION CONTINUED

3900 Sample Top Vanguard

3900 4080 Sandstone; scattered light gray, very fine grained, slightly calcareous; shale, gray-green and browns and blacks, fissile.

4080 Sample Top Rierdon

4080 4250 Shale; light gray-green, splintery; trace sandstone, fine grained, gray-brown.

4250 Sample Top Piper Shale

4250 4340 Shale; as above with scattered brick red, silty shale; trace sandstone, very fine grained, light gray to gray-brown.

4340 Sample Top Piper Limestone

4340 4390 Limestone; light gray to buff, trace porosity, no show; mostly gray flakey shale.

4390 Sample Top Gypsum Springs

4390 4430 Shale; medium gray, trace of white, soft anhydrite and above limestone.

4430 4480 Shale; as above with trace of brown sandy shale.

4480 4550 Shale; light gray with traces of light gray silty limestone; trace of brown sandy shale.

4550 Sample Top Spearfish

4550 4690 Shale; deep or brick red, sandy with the above gray and dark gray shale; trace of light gray limestone.

4690 Sample Top Amsden

4690 4760 Limestone; light gray, crystalline, trace aragonite and trace of pink dolomite.

4760 4834 Limestone; light gray with trace colites; some purple lime, bedded; light to dark gray shale; trace brown sandy shale.

4834 Sample Top Heath

4834 4880 Shale; multi-colored, red, purple, gray; trace green limestone and fine grained sandstone.

4880 4920 Sands; red, poorly sorted, coarse to fine grained, good porosity and permeability, no show.

4920 4952 Shale; multi-colored, red, gray and black with trace of white earthy limestone.

SAMPLE DESCRIPTION CONTINUED

4952 Sample Top Otter

4952 4970 Shale; light apple green with traces of above shale.

4970 5030 Sandstone; coarse grained, red, good permeability and porosity, no show, trace gray earthy limestone in last 30'.

5030 5110 Shale; multicolored, limy for most part.

5110 Sample Top Kibbey

5110 5130 Shale; purple, gray; gray silty shale.

5130 5150 Sandstone; fine grained, red, hard, tight, no show.

5150 5160 Shale; light gray-green, limy.

5160 5260 Sandstone; fine grained, red and white, hard, dense, no show.

5260 Sample Top Kibbey Limestone

5260 5340 Limestone; buff color with trace of porosity in first 20', no show.

5340 Sm Sample Top Madison

5340 5440 Limestone; light gray, fine to microcrystalline; anhydrite, soft, white; red and dark gray shale.

5440 5470 Limestone; light gray as above; no anhydrite; traces of dark gray dolomite.

5470 5496 Core No. 1, cut 26', recovered 26'. "A" Zone

5496 5560 Limestone; light gray, dense, no show; trace of gray anhydrite and dolomite.

5560 5580 Salt; mostly gray limestone and shaley dolomite.

5580 5600 Limestone; light gray, mostly dense, few pieces of microcrystalline; traces of light gray anhydrite.

5602 5640 Core No. 2, cut 36', recovered 36'. "B-1" & "B-2" Zones.

5640 5660 Limestone; with trace of brown shaley dolomite, no show.

5660 5690 Limestone; light gray, dense, no show, trace of anhydrite.

5690 5740 Limestone; light gray, shaley, no show.

5740 5769 Limestone; light gray, some finely crystalline, no porosity and permeability, no show.

SAMPLE DESCRIPTION CONTINUED

5769 5778 Core No. 3, cut 9', recovered 9'.

5778 5779 Core No. 4, cut 1', recovered 3'.

5781 5839 Core No. 5, cut 58', recovered 57'.

Total Depth 5843' Schlumberger equals 5839' Driller.

Location: SW NE Sec. 9-T28N-R51E

Spacing - 160 acres

Elevation: 2054 K.B. 2044 G.L.

Spudded: 10-3-55

Completed: 12-12-55

T.D.: 5843' Schl = 5939' Drlr.

Prod. Zones: B-2 5639-44'

Schlumberger Tops

	Depth	Datum	Thickness
Judith River	----	-----	
Greenhorn	2332	- 278	
Muddy Sd	*2930	- 876	
Dakota Silt	3123	-1069	
Piper Ls	4340	-2286	
Amsden	4690	-2636	
Heath	4834	-2780	
Otter	4952	-2898	
Kibbey Sd	5110	-3056	
Kibbey Ls	5260	-3206	
Madison	5344	-3290	
A-1	**5454	-3400	2'
A-2	**5469	-3415	3'
A-3	**5480	-3426	?
A-4	*5496	-3442	26'
B-1	**5620	-3566	8'
B-2	5640	-3586	15'
B-3	**5660	-3606	9'
B-4	**5692	-3638	4'
B-5	5727	-3673	?
C-1	**5767	-3713	?
C-2	*5786	-3732	8'

**Probable prod. Zones (From DST structural position, etc.)

*Shows

Drill Pipe Corrections (Made)

None

#1 5470-5496 Rec. 26' A-3 & 4

#2 5602-5640 Rec. 37' B-1

#3 5769-5778 Rec. 3' B-2

#4 5778-5779 Rec. 3' C-2

#5 5781-5839 Rec. 56' C-2

Drill Stem Tests:

~~DST #1 5480-89' A-3~~. Strad. pkr, 1/2" bot cke., no w.c. Tool opn 4 hrs, SI 30 min. Opnd w/w. blow, died in 40 min, Dead 35 min, started with w. blow, cont'd thruout test. Rec. 30' gas, 90' gas cut mud, 120' muddy s.sulf wtr, 438' salt sulf wtr. IBHFP 0#, FBHFP 230#, BHSIP 2850#, Hydro 3160#, Bot. pkr. held o.k.

DST #2 5631-40' B-2, 1/2" bot cke, no w.c. Tool opn 4 hrs, SI 30 min. Opnd w/w. blow for 18 min. Incrsd to good blow. Rec. 3270' gas, 360' cln oil, 180' o & g and s.w. cut mud, 540' s.w. IBHFP 20 FBHFP 470 BHSIP 2730 Hydro 3015. DST #3 5614-26' B-1, Strad. 1/2" bot. cke, no W.C. Tool opn 4 hrs, SI 30 min. Opn w/v. weak blow, died in 45 min. Dead rest of test. Rec. 5' mud, IBHFP 0 FBHFP 20, BHSIP 20, Hydro 3015, Held o.k.

DST #4 C-1 5768-79' 1/2" bot. cke. No W.C. Tool opn 2 1/2 hrs. SI 30 min. Tool opnd w/v. weak blow, died in 65 min. Dead rest of test. Rec. 15' rathole mud. IBHFP 0 FBHFP 0 BHSIP 20 Hydro 3015.

DST #5 5781-91' C-2 w/Hall strad. No WC, 1/2" bot. cke, Tool opn 3 hrs, SI 30 min. Rec. 180' gas, 90' sli o cut muddy s.w. IBHFP 0, FBHFP 40, BHSIP 123, Hydro 3030.

History Subsequent to Completion:

None

SERVICE & TESTING

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MAR 6 - 1957

WORKOVER HISTORY NO. 1

OIL AND GAS CONSERVATION COMMISSION
Date February 22, 1957 MONTANA

Lease and Well East Poplar Unit Well No. 68

Field East Poplar County Roosevelt State Montana

Well Location SW NE Section 11, T28N, R51E

Status Prior to Present Job:

Date Completed December 14, 1955 Date Last Workover None

TD 5961' PBDT 6924' Producing Zone A-3 of the Madison Formation

Perforations 5614-19' (A-3 zone) w/5 j.s.p.f. Cumulative Prod. 20,973 bbls oil, 23,272 bbls water. Latest test 30 BOPD and 75 BWPD

Justification for Workover:

Fluid analysis showed a high salt content in the oil and water possibly causing a salt block. Will attempt to dissolve salt block to increase fluid to keep the well flowing.

Summary of Workover:

2-13-57: PBDT 5924'. To eliminate a possible salt block, the formation was washed with 50 barrels of fresh water as follows: Spotted 50 barrels water down tubing. Began injecting fresh water at 3/4 BPM 1200#. Slowed down pump after 5 barrels fresh water in formation, injected at the rate of 1/2 BPM 950#. With 23 barrels in formation, increased pump rate to 3/4 BPM, 1100# (slight formation break). Washed zone by flowing back 5 barrels and injecting 10 barrels. Final injection rate, 3/4 BPM at 1300#. 50 barrels fresh water in formation, 5 barrels oil overflush. Bleed down pressure 900#. Opened well to test tank. Flowed back 27 barrels oil, tubing displacement plus 5 barrels overflush, began getting salty water. Took samples on 5 barrel increments to check chlorides, fresh water injected either picked up salt or was diluted by salt water. Recovered 27 barrels displacement oil, 50 barrels injected water, 20 barrels formation fluid. Turned well through treater to clean up overnight.

2-14-57: PBDT 5924'. Flowed well through treater overnight to clean up. On 4 hour test, open flow, well flowed at the rate of 201 BFPD, 78% BS&W. (14 BOPD, 157 BWPD). Water samples were taken at approximately 5 barrel intervals when flowing the water back and chloride tests were run on the samples. The chlorides increased from 19,000 PPM to 75,000 PPM quite uniformly. This indicates that if any salt were deposited around the well base it had nearly all been dissolved by the first of the fresh water. More likely the water injected was diluted by formation--greater penetration equals greater chloride concentration. A total of 1400# of salt was removed by the 50 barrels of fresh water or an average of 28# per barrel. Before the fresh water treatment, the well averaged 20 BOPD and had a water cut of 82%.

Workover History No. 1 Continued

- 2-15-57: PBTD 5924', testing. On 24 hour test, open flow, well flowed at the rate of 203 BFPD, 78% BS&W (45 BOPD, 158 BWPD).
- 2-16-57: PBTD 5924', testing. On 6 hour test, open flow, well flowed at the rate of 195 BFPD, 81% BS&W (27 BOPD, 158 BWPD).
- 2-17-57: PBTD 5924' testing. On 24 hour test, open flow, well flowed at the rate of 191 BFPD, 81% BS&W, (36 BOPD, 155 BWPD).
- 2-18-57: PBTD 5924', no test.
- 2-19-57: PBTD 5924', no test.
- 2-20-57: PBTD 5924', flowing. On 2 hour test, flowed at rate of 163 BFPD, 80% water, 130 BWPD, 33 BOPD.
- 2-21-57: PBTD 5924', to drop from report. On 24 hour test, well flowed at the rate of 175 BFPD, 79% water (37 BOPD, 138 BWPD) TFP-10#, CP-700#.
Workover Potential.

Re-cap of Workover:

Final Perforations - A-3 zone 5614-19' (unchanged).

Final PBTD - 5924' (unchanged).

Initial Potential after workover - 175 BFPD, 79% water (37 BOPD, 138 BWPD), TFP-10#, CP700#.

Producing zone - A-3 zone of Madison Formation.

Downhole Equipment - (unchanged).

Results of Workover:

Chloride tests indicated that nearly all salt deposits, if any, near the well bore were dissolved by the fresh water increasing oil production by 7 BPD and water production by 63 BPD. Did not produce desired results.

RECEIVED

MAR 6 - 1957

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

PRODUCTION &
INJECTION DATA

SURFACE EQUIPMENT

